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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,667	09/23/2003	Kohtaro Ohba	AIS-0012	9102
23353 7590 01/26/2007 RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			EXAMINER EGAN, SCOTT T	
			ART UNIT	PAPER NUMBER
			2609	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/667,667

**Applicant(s)**

OHBA, KOHTARO

**Examiner**

Scott Egan

**Art Unit**

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/18/2004 and 3/10/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This action is responsive to the original application filed on September 23, 2003.
2. Claims 1-4 are currently pending in this application. Claim 1 is independent.

### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on March 10, 2004 and August 18, 2004 was filed. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Specification***

5. The disclosure is objected to because of the following informalities: On page 9 line 16 the disclosure reads "via the internal bus 34", it should be change to conform to the rest of the specification saying "via the internal bus 34". On page 11, line 6 the

disclosure reads, "the art will readily appreciated" and should be changed to "the art will readily appreciate".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 1 and 2** are rejected under 35 U.S.C. 102(b) as being anticipated by **Kawabe et al. (JP 01024205 A)**.

Consider **claim 1**, Kawabe et al. explicitly teach "a fiber array camera (optical imaging system fig 1) comprising:

a plurality of optical fibers (see constitution, many optical fibers 7);

a fiber assembly unit (optical fiber photodetecting body 6) in which the optical fibers are bundled together (see figure 1) and an image pickup surface comprising end surfaces of the optical fibers is formed (optical fibers 7 are set to be on the same axis as the lens forming a photodetecting surface);

a light receiving lens (see figure 1, lens 1) for focusing an image of an object on the image pickup surface (the light rays pass through the lens 1 onto the photodetecting surface as seen in figure 1); and

a plurality of light receiving elements (photodetecting diodes 8), each of which is connected to one of the optical fibers and receives an optical signal for one pixel therefrom (see figure 1, each fiber 7 corresponds to photodetecting element 8)."

Consider **claim 2**, Kawabe et al. explicitly teach "the fiber array camera according to claim 1, wherein the image pickup surface (photodetecting surface) is part of an arc or spherical surface (arbitrarily curved surface 5) whose center is a point on an optical axis of the light receiving lens (as seen in figure 1 the center of the curved surface 5 is on the same axis 2 as the lens 1)."

8. **Claims 1, 3, 4/1 and 4/3** rejected under 35 U.S.C. 102(b) as being anticipated by **Zurl (DE 41 06 175 A1)**.

Consider **claim 1**, Zurl explicitly teaches "a fiber array camera (ultra high speed camera) comprising:

a plurality of optical fibers (glass fibers 4);

a fiber assembly unit (holder 2) in which the optical fibers are bundled together and an image pickup surface comprising end surfaces of the optical fibers is formed (an event observed is imaged by means of the lens 1 on the entrance aperture of the glass fibers, page 5, paragraph 5);

a light receiving lens (lens 1) for focusing an image of an object on the image pickup surface (an event observed is imaged by means of the lens 1 on the entrance aperture of the glass fibers, page 5, paragraph 5); and

a plurality of light receiving elements (photodiodes 17, figure 2, in each IC the partial image is first converted into analog electric signals by means of photodiodes,

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page 5, paragraph 7), each of which is connected to one of the optical fibers and receives an optical signal for one pixel therefrom (there may be p fiber ends in a square arrangement, in this manner the conditions for imaging with p picture element are fulfilled, page 5, paragraph 5)."

Consider **claim 3**, Zurl explicitly teaches "the fiber array camera according to claim 1, wherein the end surfaces are in hound's-tooth arrangement (should the goal be an image with high resolution, but relatively small image field, the fiber ends in the entrance plane are arranged in the shape of a hexagonal close package, page 3, paragraph 6)."

Consider **claim 4/1 and 4/3**, Zurl explicitly teaches "The fiber array camera as in claim 1 or 3, further comprising a preamplifier for converting output current of the light receiving elements into voltage, an A/D converter for converting the voltage into digital signals (the optoelectronic receivers can be designed as integrates circuits, which contain...an amplifier and an A/D converter, page 4, paragraph 1), a memory for successively storing the digital signals (the provided memory mediums are digital and are organized in such a manner that behind each receiver there is a partial storage with large capacity for one picture element, page 5, paragraph 1), and an image signal output unit in which the image signal output unit reads out the digital signals so as to form a digital image signal of the object (page 5, paragraph 2 explains how the information that is stored in the memory can be analyzed by a computer therefore it must be output to that computer, page 7, paragraph 1 also shows that the image

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information is put onto a bus 13 which is connected to an interface 14 that can output the data, see figure 2)."

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. **Claim 4/2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Kawabe et al. (JP 01024205 A)** in view of **Zurl (DE 41 06 175 A1)**.

Consider **claim 4/2**, Kawabe et al. explicitly teach the fiber array camera as in claim 2.

However, Kawabe et al. do not explicitly teach the use of a preamplifier for converting the output to a voltage, an A/D converter for converting the voltage to a digital signal, a memory for storing the digital signals, and a image signal output unit four outputting a digital image signal of the object.

In the same field of endeavor, Zurl teaches an ultra high speed camera with fast computer coupled analysis. Zurl further teaches that the optoelectronic receivers can be designed as integrates circuits, which contain...an amplifier and an A/D converter on page 4, in paragraph 1. Zurl further teaches that the provided memory mediums are digital and are organized in such a manner that behind each receiver there is a partial storage with large capacity for one picture element on page 5, in paragraph 1. Zurl further teaches on page 5, in paragraph 2 that the information that is stored in the memory can be analyzed by a computer therefore it must be output to that computer and on page 7, in paragraph 1 also shows that the image information is put onto a bus 13 which is connected to an interface 14 that can output the data, see figure 2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the electronic receivers including amplifier, A/D converter, memory, and output means into the optical system taught in Zurl in order to provide a fast computer-coupled analysis without long and expensive development steps (abstract of Zurl).

### **Conclusion**

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Korein (US 2002/0096629) discloses a fiber optic image mapping apparatus that consists of a light focusing lens and image plane starting with one end of a bundle of optical fibers, whose other end is connected to the image sensor. Abell et



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al. (US 4,323,925) discloses a apparatus for arraying image sensor modules, which includes an imaging lens which light passes to a collection of optical fiber bundles, which then send the light to the image sensors. Fujieda (2003/0062490) discloses an imaging device which includes a holder that contains a lens and a fiber optic bundle that is connected to the image sensors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Egan whose telephone number is (571) 270-1452. The examiner can normally be reached on Monday-Friday 8:00 a.m. - 5:00 p.m., EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 270-1455. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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